

REMARKS

This is in response to the Office Action that was mailed on July 7, 2004. New claim 21 corresponds to former claims 1, 3, and 4. New claim 22 corresponds to former claim 5. New claim 23 corresponds to former claim 6. New claim 24 corresponds to former claim 7. New claim 25 corresponds to former claim 19. New claim 26 corresponds to former claim 20. New claims 27 and 28 are based upon former claims 1-4 and upon the paragraph bridging pages 10-11 of the specification. New claim 29 corresponds to former claim 8. New claim 30 corresponds to former claim 9. New claims 31-34 correspond to former claims 15-18, respectfully. No new matter has been introduced. Claims 21-34 are in the application.

Claims 1, 4, 6, and 7 were rejected under 35 U.S.C. §§ 102(b) and 103(a) over Abdel-Jawad and Lennemann. Abdel-Jawad discloses a "sulfur concrete", but teaches nothing about the use of the sulfur concrete as a denitrifying composition. It goes without saying that Abdel-Jawad fails to suggest mixing a microporous substance capable of enhancing adhesion of bacteria to thereby provide a proliferation site. Lennemann merely discloses the use of sulfur concrete for solidifying radioactive waste. Inasmuch as independent claim 21 is reduced in scope by comparison to former independent claim 1, and none of

the claims now present in this application has the scope of any one of former claims 1, 4, 6, or 7, the rejections of claims 1, 4, 6, and 7 are manifestly obviated by this Amendment.

Claims 1, 3-9, and 15-20 were rejected under 35 U.S.C. § 103(a) over Overath in view of Kruithof and van der Hoek and Abdel-Jawad and Lennemann. Overath describes a denitrifying composition prepared by impregnating support materials with sulfur. Overath fails, however, to teach or suggest the use of calcium carbonate. Calcium carbonate serves two functions in the context of the present invention. It serves as a nutrient source for bacteria, and the calcium ions serve to neutralize sulfate ions formed through the denitrification process, thereby ensuring a good growth environment for the bacteria. Kruithof discloses denitrification using a mixture of sulfur and limestone. However, the Kruithof mixture is not prepared by dispersing the limestone in melted sulfur and solidifying the whole. Also, Kruithof fails to suggest mixing a microporous substance thereinto. The van der Hoek reference merely describes a denitrification process using sulfur and limestone. The teachings of Abdel-Jawad and Lennemann are discussed above. The Examiner has advanced no convincing reason for combining the techniques described in the various references cited. In particular, Abdel-Jawad and

Lennemann disclose compositions for different applications, and no reason can be seen for combining the teachings of these two references in the manner proposed by the Examiner. Inasmuch as independent claim 21 is reduced in scope by comparison to former independent claim 1, and none of the claims now present in this application has the scope of any one of former claims 1, 3-9, and 15-20, the present grounds of rejection are considered to be obviated by this Amendment.

Claim 2 was rejected under 35 U.S.C. § 103(a) over Overath in view of Druithof and van der Hoek and Abdel-Jawad and Lennemann and Heinzl. The teachings of the Overath, Druithof, van der Hoek, Abdel-Jawad, and Lennemann references are discussed above. Heinzl discloses a method of wastewater treatment using zeolite, but fails to describe or suggest mixing sulfur and calcium carbonate. Furthermore, the Heinzl method is not aimed as a main objective at denitrification using bacteria. A person of ordinary skill in the art would not be motivated to combine the teachings of Heinzl with the technology disclosed by the remaining references upon which the Examiner relies. In any event, it is pointed out that the zeolite in Heinzl has a very different composition from that of the present invention and that the Heinzl zeolite is not used for denitrification. Inasmuch as independent claim 21 is

reduced in scope by comparison to former independent claim 1, and none of the claims now present in this application has the scope of former claim 2, this ground of rejection is obviated by the present Amendment.

IMPROPER HINDSIGHT. The number of different references combined by the Examiner to reject the claims formerly presented herein raises the question of whether the rejections in question involve improper hindsight.

The rigorous burden placed upon an Examiner for establishing a *prima facie* case of obviousness was reviewed by the United States Court of Appeals for the Federal Circuit in *In re Lee*, 61 USPQ2d 1430. In *Lee*, the court observes that:

When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., *McGinley v. Franklin Sports, Inc.*, 60 USPQ2d 1001, 1008 (“the central question is whether there is reason to combine [the] references,” a question of fact drawing on the *Graham* factors).

... *In re Dembiczak*, 50 USPQ2d 1614, 1617 (“Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.”); *In re Dance*, 48 USPQ2d 1635, 1637 (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); *In re Fine*, 5 USPQ2d 1596, 1600 (“teachings of references can be combined only if there is some suggestion or incentive to do so.”) (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 221 USPQ 929, 933).

The need for specificity pervades this authority. See, *e.g.*, *In re Kotzab*, 55 USPQ2d 1313, 1317 ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed")

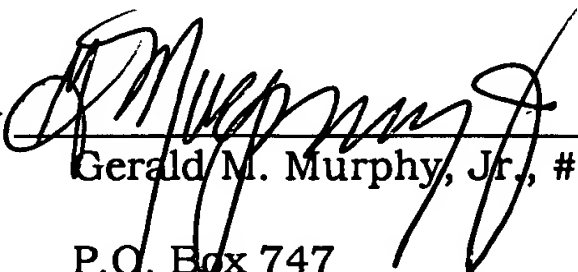
It is respectfully urged that the Examiner be cognizant of the burden of proof imposed on the PTO when he is considering the effect of the references of record with respect to the claims now presented in this application.


If the Examiner has any questions concerning this application, he is requested to contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8008.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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